

14/3/2017

الأساتذة

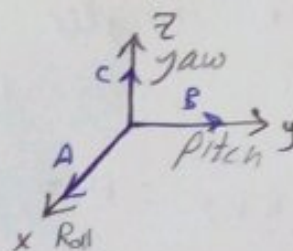
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محاضرة [5]

for convention we use the axes

* Multiplication

$$\xleftarrow[\text{xyz}]{\text{PRE}} \mathbf{I}_3 \xrightarrow[\text{ABC}]{\text{Post}}$$



* Examples p. 45, p. 46, p. 47, p. 48, p. 49, p. 50

* Example 3.5 p. 48 (Remove the comma)

* Example 3.6 p. 49 (Qabc final result is not correct)

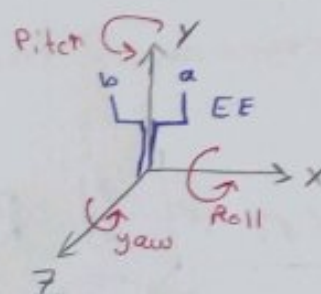
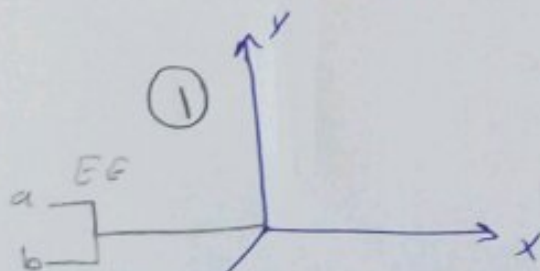
$$Q_{abc} = [4, 3.5\sqrt{3}, -0.5]$$

* Example 3.8 p. 50 (fix the axes)

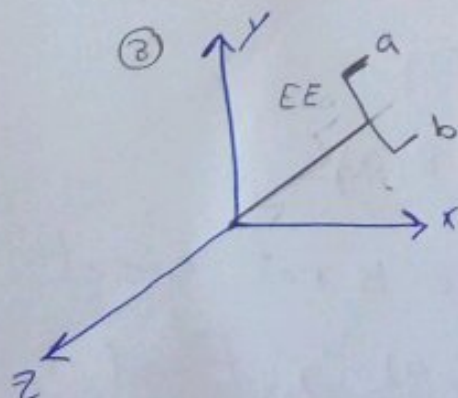
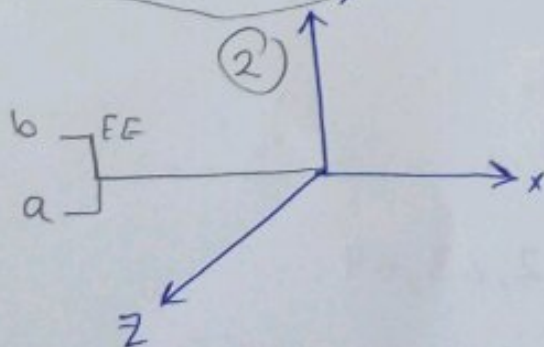
$$\textcircled{1} R(z, \pi/2)$$

$$\textcircled{2} R(x, \pi)$$

$$\textcircled{3} R(y, -\pi/2)$$



$$R_t = R(y, -\pi/2) R(x, \pi) R(z, \pi/2) \mathbf{I}_3$$



Euler angles P. 54

Roll, Pitch, Yaw Rotation in P. 54 is wrong

$$R_{RPY} = R(Z, \phi) R(Y, \theta) R(X, \psi)$$

Euler angles page. 55 Rotation figure

* Correct figure in P. 56

$x \rightarrow \text{Roll}$, $z \rightarrow \text{Yaw}$

* Homogeneous Transformation Matrix P. 57

4x4 matrix inverse

$$P_{xyz} = H P_{abc}$$

$$P_{abc} = (H^{-1}) P_{xyz}$$

inverse of 4x4

* Inverse Homogeneous Transformation P. 58,

* Examples P. 59

$H(x, 30) \rightarrow \text{rotation}$

$H_t(x, 4) \rightarrow \text{translation}$

* Examples P. 60, 61, 62, 63, 64

for translation, we can write

$$H_t(B, 8)$$

$$\text{OR } H_t(\underset{A}{0}, \underset{B}{8}, \underset{C}{0})$$

Example 3.12 figure is not correct

$$\overset{D}{E} \rightarrow (1, 5, 0) , F \rightarrow (-1, 5, 0)$$

نقطہ ارجعہ وغیرہ لامدانیات کما هو موضح